

DATE: Wednesday, May 01, 2019

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FROM: Ben Hillard
Math and Science Curriculum Coordinator

SUBJECT: **6-8 Science Recommendation**

Committee Members

Julie Blomquist, Emerson
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Recommended Curricular Materials:

Amplify Science, 2019, Amplify.

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Included Materials

- Digital Courseware 6-year license.
- Materials Kits
- Teacher Resource Package

Cost proposal is attached.

Summary of Courses

Currently in our 6th through 8th grade science classes, we teach modules that cover topics in physical science, life science, and earth science. Our 6th and 7th grade classes are currently integrated, while 8th grade focuses entirely on earth science. We are intending to move towards integrated science in all three grade levels pending the approval of new materials.

Overview

During the 2015-16 school year, the state of Michigan adopted the Michigan Science Standards. This has made it necessary to review our curricular materials for science in all grades. For grades 6-8, the standards are all included in one band rather than listed separately by grade. Because of this, we formed a committee of teachers from all three grade levels.

After two years, our committee has come to the decision that the best selection for adoption would be Amplify Science. This program best met the evaluation criteria and coherently developed the science concepts and practices we deemed as priorities during our analysis. Amplify Science is NGSS aligned and provides opportunities for students to learn concepts centered around anchoring phenomena throughout each unit. Amplify also includes units that address the engineering standards included in NGSS.

After reviewing several choices, we felt that the Amplify program was the strongest option and would provide a valuable resource for our science teachers and students in grades 6-8.

Evaluation Process

Our 6-8 science committee included teachers throughout the district from all three grade levels and all upper elementary and middle schools. We met throughout the past two years to develop a vision for our courses, evaluate and pilot materials, and reflect on how these materials would impact teaching and learning.

We began our work by creating a shared vision of what our committee deemed as essential elements for new materials.

Shared Vision

1. Hands-on, age-appropriate activities that support inquiry that has materials and funding to be sustainable
2. Age-appropriate reading materials
3. Technology infused in learning
4. Meaningful, engaging, authentic activities that develop critical thinking and questioning skills
5. Realistic timeline that provides opportunities to meet with students, discuss topics, share ideas, etc.
6. A coherent structure to the development of concepts, so students can make connections (building on, not repeating)
7. Aligned to standards
8. Student-centered
9. Opportunities for differentiation
10. Formative, summative, and self-assessment provided in the materials

Evaluation Criteria

We evaluated the programs on four main categories: Purpose, Student Engagement, Curriculum/Pedagogy, and Assessment for Learning. Within each of these categories were several indicators related to that domain. This rubric was developed using our shared vision and principles of our 5D evaluation system. The full evaluation rubric is attached.

Topics Evaluated

Although we spent time reviewing each program in its entirety, we initially developed priority standards so we could focus on the development of certain topics deemed most essential by the committee. In addition, we focused on the ways in which the Science and Engineering practices were developed in conjunction with the Disciplinary Core Ideas. For example, we wanted to see how each program developed the use of claim, evidence, and reasoning in each of the science domains.

Evaluation Rubric Outcome

Using our evaluation criteria, we rated eight different programs (listed below). After our initial review of each program, we selected three to evaluate further through a pilot process.

Programs Evaluated

- Amplify Science*
- Discovery Science Techbook*
- HMH Science Dimensions*
- Mi-STAR Science
- FOSS
- IQWST
- Cereal City Science (Battle Creek) NGSS Edition
- TCI Bring Science Alive!

*selected for pilot

Pilot

We piloted at least one unit in each of the three programs (Amplify Science, Discovery Science Techbook, and HMH Science Dimensions). After the pilot process, Amplify Science was rated the highest of the three by our committee. Our members felt that Amplify generated better discussions among students and, in most cases, pushed for deeper thinking of scientific concepts. All three programs were piloted at all three grade levels, so we had an opportunity to see how each program attacked different scientific content.

Student Rating

At the conclusion of the pilot for each set of materials, students were given a survey and were asked questions relating to their perception of their level of understanding of the science concepts covered during the time of the pilot as well as their opinions on the ease of use and overall desirability of the program. The summary table is included on the following page.

Percent of Students Answering Agree or Strongly Agree to Each Statement

	Amplify	Discovery	Dimensions
I feel I have a strong understanding of the concepts we covered during the time we used these materials.	86%	45%	60%
These materials made me feel that I was trying to figure out an interesting scientific phenomenon while I was in class.	65%	30%	42%
If I were absent, I believe I could use these materials to help me catch up on the concepts I've missed.	68%	40%	58%
I think these materials would be good to learn from in Livonia science classrooms.	78%	32%	50%

In addition, there was a checklist where students were asked to select all that apply from a list that included several positive features (i.e. increased my enjoyment of science, was easy to understand, helped me understand real world applications, etc.). Amplify had the most selections of every statement on the list with all statements being selected by at least 58% of students.

There were also opportunities for students to share their own opinions, including positive and negative aspects from each program. We plan on using this feedback during the implementation process.

Independent Evaluation

Near the end of our process, EdReports released their first evaluations of science programs. Of the six programs listed, Amplify Science was the only program to receive a green (passing) rating in all areas.

Future Considerations

- Training of all program components, including online functionality (5 days of professional development are included in quote)
- As Amplify is adopted, we would like to utilize the seventh-grade units in sixth grade and the sixth-grade units in seventh grade. The units in Amplify can be moved around and we found that other districts did make changes to the order of units. The reading level of the program is the same for all grade levels. Because the standards are in a 6-8 band we can support students with meeting those standards any time during sixth through eighth grades.
- Time for collaboration and planning
- Follow-up training/coaching throughout at least the first year of implementation
- We would like to pilot this program in 5th grade, to determine if it would be appropriate and engaging with our 5th grade students. If possible, we would like 5th and 6th grades to have a coherent program since they are both contained in our Upper Elementary buildings.

c: Theresa O'Brien

Dan Willenborg

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